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# agricultural marketing

**BETTER STORAGE  
PRACTICES  
THROUGH RESEARCH**

**JULY/1962**

**United States Department of Agriculture**







Volume 7, Number 7

ORVILLE L. FREEMAN  
*Secretary of Agriculture*

S. R. SMITH, Administrator  
*Agricultural Marketing Service*

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### Cover Page

Research in handling, conditioning, and storage of grain in elevators is currently being conducted by marketing researchers in USDA's Agricultural Marketing Service in cooperation with State experiment stations.

Aeration research to reduce and to equalize the temperature in the stored grain and fumigation research to protect the grain from insect damage combine to give two-pronged protection. Owners of elevators who apply these research findings are able to provide better quality grain and grain products.

Since 1955, AMS has published more than ten reports on research conducted to assist operators of elevators in getting better storage practices and in reducing costs.

*Editor*, MILTON HOFFMAN

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# California Plantings Indicate MORE FRUIT AHEAD

By GILBERT E. SINDELAR

CALIFORNIA has been our biggest fruit-growing State ever since USDA began keeping statistics on fruit production. And recent fruit plantings in California indicate she's making every effort to hold that number one position.

California produces over one-half of our noncitrus fruits. She leads the country in production of apricots, avocados, figs, dates, grapes, nectarines, olives, Clingstone peaches, Freestone peaches, pears, plums, and strawberries—and ranks high in production of other fruits as well.

California supplies about a fourth of our fresh-market supplies of noncitrus fruits, and almost three-fourths of the processed noncitrus fruits.

Now a survey released by the California Crop and Livestock Reporting Board shows that California fruit growers have sharply increased their plantings in a wide variety of fruits since 1950.

Of the total acreage standing in 1960, 93 percent of the nectarines, 66 percent of all peaches, and about 50 percent or more of the avocados, sweet cherries, and plums were planted from 1950 through 1960.

In addition, a fourth to a third of the 1960 acreages of apricots, raisin-variety grapes, table-variety grapes, Bartlett pears, and prunes were planted during this same period.

Of course, the figures on new plantings don't tell the whole story. There is other important information that is needed. For example: What was the net change in total acreage of each of these crops between 1950 and 1960? How many of the new plantings were replacements for other trees or vines taken out of production?

The answers are different for each crop. For nectarines, total acreage increased 217 percent; the new plantings were practically all net additions. On the other hand, total acreage of table-variety grapes dropped almost 13 percent; the new plantings failed to offset the acreage taken out of production.

Clingstone peach acreage rose 43 percent in the 10 years; cherries about 20 percent; Freestone peaches and Bartlett pears, nearly 15 percent; and plums increased by 6 percent. Raisin-variety grapes and prunes stayed about the same, while apricots dropped 11 percent.

Why the surge of plantings during the '50's? It's hard to pin down but there are several factors involved. First, many fruit growers in California have enjoyed relatively favorable returns for a period of years. Second, as improved and higher yielding varieties have been developed, growers have made plantings with an eye to their competitive position in the future. Third, growers have been very interested in early-maturing varieties to fill gaps in the marketing pattern, and these, too, have been planted as they were developed.

Here are some of the highlights of the new planting trends:

*Clingstone peaches:* Although plantings were relatively heavy throughout the 1950's, nearly 40 percent of the 1960 acreage was planted during the 4 years from 1956 to 1960. As a result, about 36 percent of the Clingstone acreage in 1960 was in nonbearing status, in contrast to an average level of only 19 percent in the late 1940's.

*Freestone peaches:* Planting activity in this item was exceptionally heavy between 1952 and 1958, and during this period slightly over half of the 1960 acreage was planted. Since then, however, interest in Freestones appears to have subsided.

*Raisin-variety grapes:* Heavy plantings of the raisin-varieties, particularly the Thompson Seedless, began in 1954 and continued throughout the balance of the 1950's. Of the total 1960 acreage, nearly 38,000 acres were planted during the 4 years 1957 through 1960. Approximately 12 percent of the total 1960 acreage was in the nonbearing category as compared to a level of only 4 percent in the early 1950's.

*Nectarines:* Acreage for this item showed astonishing growth during the 1950's. About three-fourths of the total acreage standing in 1960 was planted during the 6-year period 1953 through 1958.

*Bartlett pears:* An analysis of the 1960 survey indicates that approximately 8,600 acres, or 20 percent of the total, had been planted since 1956. Here again, the proportion of nonbearing acreage has risen sharply—increasing from the 1945-49 average of 5 percent to the present level, 23 percent. Much of the increase in the more recent years can be regarded as replacement for trees lost through disease.

(Continued on page 16)



*New Minnesota-Wisconsin price series provides more accurate representation of manufacturing milk values than is available from alternative formulas.*

## NEW TRENDS IN MILK PRICING

By HERBERT L. FOREST

MILK pricing, as almost everyone knows, especially those who have anything to do with any of the 83 milk marketing orders, is based upon many factors. Prices are generally divided into two use groups:

(1) Prices for Class I (mainly bottling milk) and

(2) Prices for Class II milk (mainly milk used for manufactured dairy products).

Prices of Class I milk are higher, since more rigid sanitary practices are necessary and the costs of moving the milk for this use are greater. Since Class II prices must be related closely to the national market for manufacturing milk, it is the Class I price which must bring the higher returns necessary to assure an adequate quantity of milk of this quality. Class I milk on most markets is priced at varying differentials from Class II. This primarily reflects varying costs of obtaining the milk from alternative sources.

Since milk marketing orders were established over 25 years ago, many formulas and devices have been used for setting minimum prices paid to producers as established under the orders.

Butter-powder formulas and prices paid at Midwest condenseries were generally used in establishing the values of milk for manufacturing use under most orders. Later, in the operation of the Northeast orders, economic formulas were developed and used for pricing Class I milk.

During the past year, we have developed a better basis for reflecting the value of milk for manufacturing use. It is called the Minnesota-Wisconsin series, developed by the Statistical Reporting Service of the USDA. It is the average price per hundredweight for manufacturing grade milk f.o.b. plants in Minnesota and Wisconsin. They are

reported monthly from around 600 plants.

The Chicago milk marketing order was the first in 1961 to use this basis for manufacturing milk.

Following the adoption of this price series by Chicago, as a basis for pricing milk, several other marketing areas in the Midwest now use Chicago prices as a basis in establishing their own prices.

THE most significant development in the use of this new price series was a hearing held in Chicago in January by representatives from 36 midwestern Federal milk marketing areas. The hearing was held to determine whether the Minnesota-Wisconsin price series was feasible as a uniform basic formula price in computing the price of Class I fluid milk sold in their areas. Subsequently, USDA recommended that the Minnesota-Wisconsin price series be adopted as a uniform basic formula price for computing the price for milk for fluid use sold by dairy farmers under terms of the 36 Midwestern Federal milk marketing orders.

Exceptions and comments on the order recommended by USDA were considered in framing final provisions which were submitted to producers for approval. Approval by two-thirds or more of producers voting on the provisions is required before the pricing changes may be put into effect. The new price series was adopted for the 36 Midwestern milk orders effective March 1. And more recently—during June of this year—hearings were held on amending 31 additional orders to consider adopting the same basis of pricing in those markets.

The new Minnesota-Wisconsin price series provides a more accurate representation of manufacturing milk value than is available from alternative price series or formulas. About half of the

milk of manufacturing quality in the U.S. is produced in the two-State area.

There are numerous buyers in the area who convert manufacturing milk into a wide variety of manufactured dairy products. Therefore, the new price series will quickly reflect changes in the economic conditions which affect the dairy industry and milk prices. With the new basis of pricing for the Midwest markets, price alignments between markets may be preserved or changed simultaneously with greater uniformity.

One of the main reasons for the development and popularity of the new basis was the dwindling importance of the average Midwest condensery price used by many marketing areas. The number of these condensery plants has declined from 18 to 7, and the usefulness of those remaining as a basis for pricing fluid milk is seriously questioned.

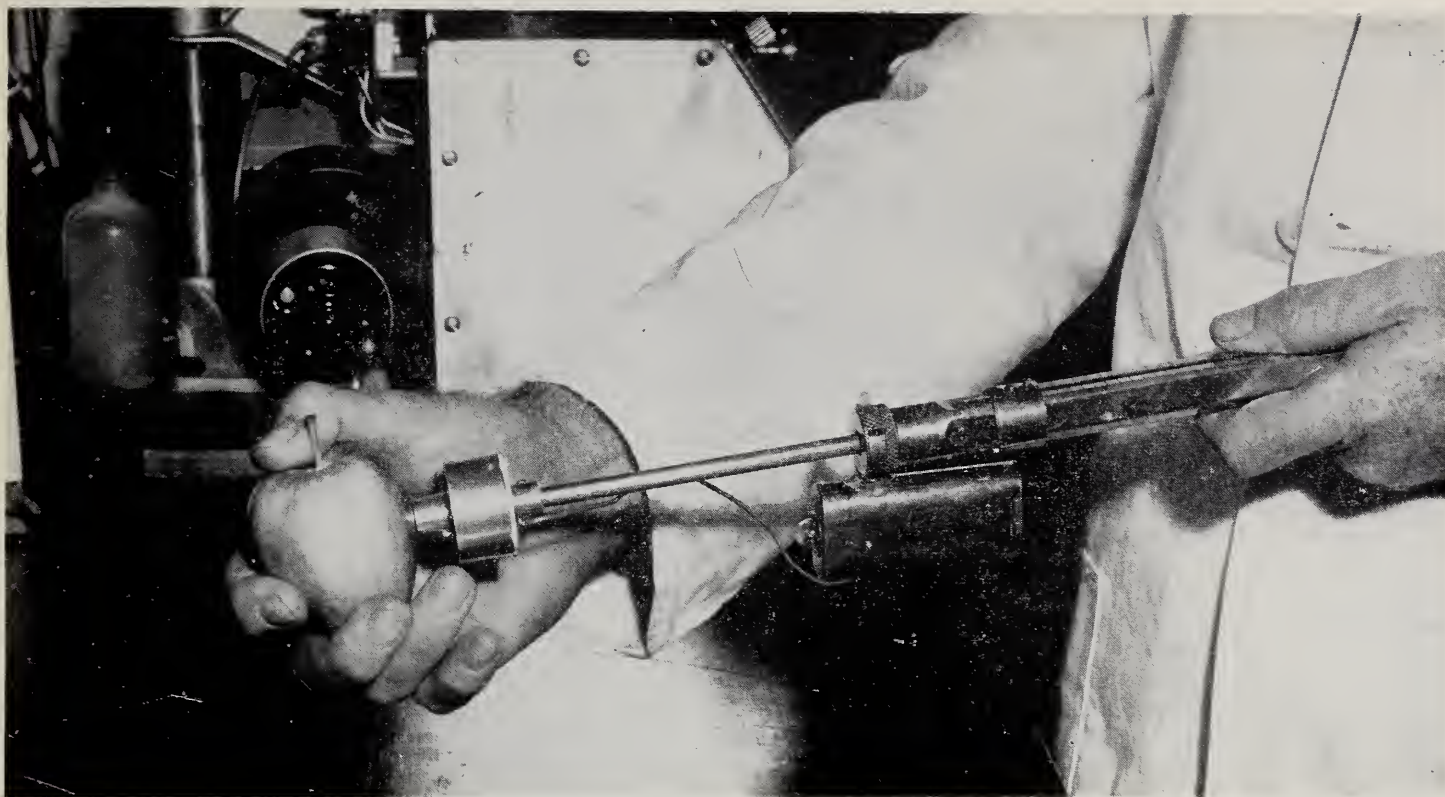
THE increasingly widespread adoption of the new price series provides another illustration of the flexibility of the milk marketing orders, and the trend to shift to pricing formulas that more accurately represent realistic price supply-demand conditions, an important factor in the effectiveness of the milk marketing order program.

Federal milk marketing programs have been in effect in various parts of the United States since 1933. The number of orders has increased from 37 in 1950 to the present 83 orders.

Marketing programs for various agricultural commodities, including milk,—designed to stabilize marketing conditions, and to improve returns to producers—began in 1933 with the enactment of the Agricultural Adjustment Act.

(Mr. Forest is Director, Milk Marketing Orders Division, of USDA's Agricultural Stabilization and Conservation Service, the agency that administers the 83 orders.)





# THE MECHANICAL THUMB

## *A New USDA Development Tests Firmness in Fruit*

**M**ACHINES are becoming more human every day. Mechanical brains, for instance, do a lot of our thinking for us. And now marketing researchers in the U. S. Department of Agriculture are developing instruments with other human traits: The senses of touch and sight. Such instruments can measure the firmness of fruit or look inside it in inspection and grading operations.

One of the instruments, a hortispect, (See *Agricultural Marketing*, March 1961) can see inside apples, potatoes, and other fresh products, and detect hidden internal defects without affecting the marketability of tested samples.

Another instrument developed by marketing researchers from USDA's Agricultural Marketing Service is the mechanical thumb, which "feels" the firmness of apples and other fruits to determine their ripeness. Although neither the hortispect or the mechanical thumb is ready for commercial use right now, both have given highly promising results when tested under actual commercial conditions.

The mechanical thumb has a more

sensitive "feel" for an apple than the thumb of the most talented produce expert. It can be more objective in determining the ripeness of apples in storage houses since, unlike humans, no emotional feeling or other subjective influence affects its judgment.

The "thumb" gives a rapid and consistent performance day in and day out. And all copies of the instrument, unlike human inspectors, can be made to perform exactly alike. Inspectors across the country who use the instrument are therefore more likely to make their judgments on the same basis.

It takes very little training or practice to learn to use the mechanical thumb. Essentially, the test consists of placing an apple against the end of the rod-like instrument with one hand, while holding the "thumb" in the other hand, for a quick reading of the fruit's ripeness. To obtain the most accurate results, the instrument can simply be fastened to a table with a workshop clamp; the fruit can then be pressed against the "thumb" with both hands.

The mechanical thumb has such a

gentle touch that only a slight indentation or bruise is left on the fruit. Such a small blemish on samples does not impair sales. This is another point in favor of the mechanical thumb since some other testing methods injure fruit used as test samples.

Marketing researchers Harold A. Shomer and Kenneth L. Olsen, staff members of the Wenatchee, Washington, station of the Horticultural Crops Branch, Market Quality Research Division, developed the "thumb" from the Magness-Taylor Pressure Tester, an instrument which USDA researchers developed about 30 years ago. And the advantages of the new instrument are about the same as those of a new automobile over a 1930 model.

Although the mechanical thumb was designed primarily for testing the ripeness of apples before they're removed from storage, the instrument is being tested on other fruits and in other marketing channels, to see how widely it can be applied in bringing fruits and vegetables to market in their best stage of ripeness.



# Grading Standards Proposed for European Meat Marketing

IN NOVEMBER 1961, a group of livestock and meat standardization specialists representing 5 of the 20 member nations of the Organization for Economic Co-operation and Development sat down at a conference table in Kulmbach, Germany. Meeting under the auspices of OECD's Division for Technical Action and Productivity in Agriculture and Food, these technicians attempted to solve the many and varied problems involved in the establishment of a uniform grade system of meat standards which could be used by the European countries of OECD.

In addition to delegates from Germany, England, Denmark, and Norway, the conference was attended by Mr. W. Edmund Tyler, Chief of the Standardization Branch, Livestock Division of USDA's Agricultural Marketing Service.

The specific task of the conference was the formulation of standards for the grading of beef, veal, and pork carcasses in order to facilitate meat trading between OECD countries. A proposed draft of such standards grew out of a European marketing seminar held in Germany in 1960. The conference at Kulmbach worked as a subcommittee to review and revise the original draft of those proposed standards.

The problems involved in the marketing of meat among so many different nations are obviously many and wide in scope. There are many variations in livestock- and meat-marketing systems. These variations are due to structural differences in the meat trade from one country to another, and these, in turn, are determined largely by consumer demands for varying types and qualities of finished products.

In most OECD countries, live animals have long been, and still are, sold directly to meat processors on a liveweight basis. However, in recent years, there has been a steadily increasing trend toward the sale of livestock on a carcass

merit basis. This has resulted primarily from a general feeling among producers that the actual value of an animal can be better determined after the animal is slaughtered.

ANOTHER significant trend is developing toward a centralization of slaughtering facilities. With a shortage of labor in the butchering trade, centralization results in an economy of manpower. It is also felt that centralization results in a higher and more easily maintained degree of sanitation, and permits meat processors to buy just those parts of the carcass which are needed to meet consumer demand—without having to accept parts for which there is relatively little demand.

In order to smoothly and efficiently expand the development of carcass trading beyond national boundary lines—to

put it on an international scale—the standardization conference attempted to formulate a basic set of factors for grading carcasses. To be of maximum practical value, there was a need for factors based on characteristics which lend themselves to routine inspection and examination procedures. It was generally agreed that the quality of meat may be determined from the age of the animal, and tissue structure of the carcass.

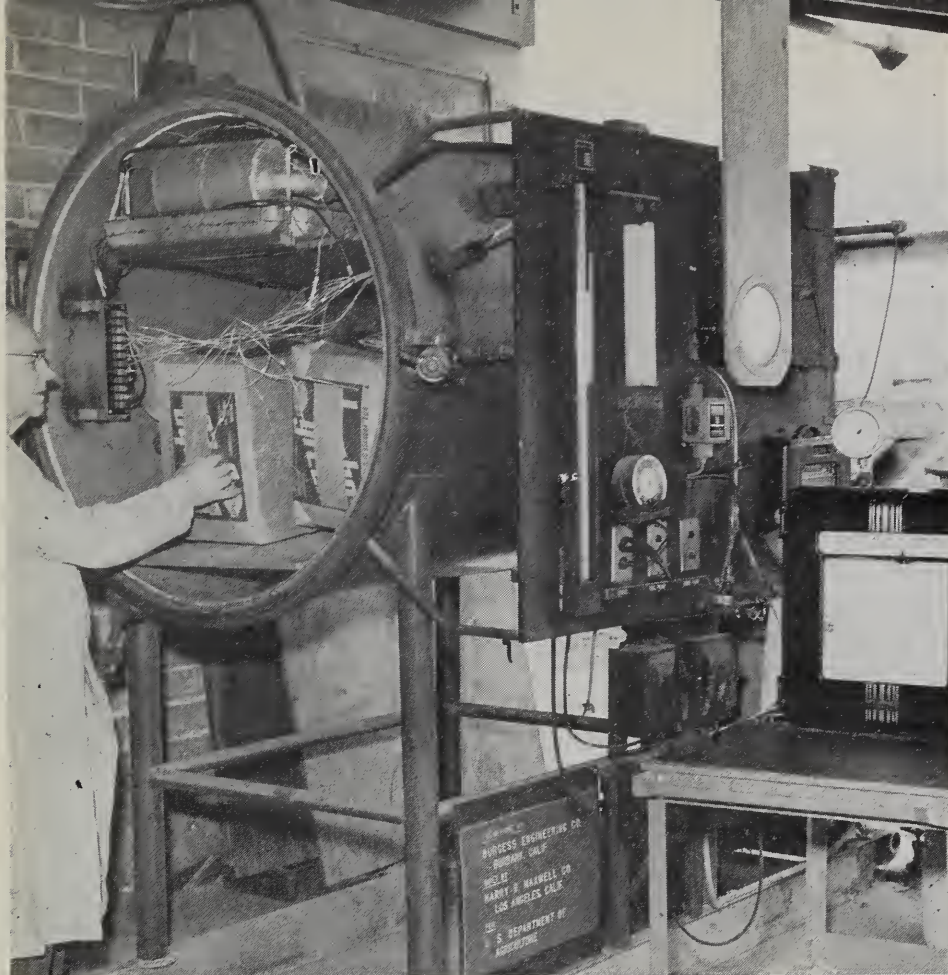
The standards recommended by the conference have emphasized those factors relating to the proportion of muscle to fat in the carcass. However, in this connection, the conference adopted the USDA marbling pictures and established minimum and maximum requirements for marbling (the amount of fat interspersed with the lean) for various grades of beef. Certain factors based on the USDA-developed dual grading system for beef were also adopted—factors relating to fat thickness between the 12th and 13th ribs, and the percentage of kidney fat. Backfat thickness will be used as a grade factor for pork, and feathering will be used in determining the quality of veal. Some of our top grades for beef and pork would have too much fat for the European market, but in the case of veal, just the reverse is true—Europeans demand a high-quality product comparing closely with our Prime grade.

A smooth and free-flowing international meat trade cannot be accomplished overnight. It will take time to institute the legal and technical foundations upon which to base such trade. However, once the ground rules have been established, marketing should proceed in an orderly and efficient manner. It is hoped that then the producer's product will be more realistically appraised, industry will be better able to satisfy specific market demands, and consumers will be more assured of getting a product to suit their needs.



*Europeans have opportunity to see various U. S. meat cuts in a supermarket display at one of our foreign agricultural exhibits.*





*Wires leading to temperature-recording equipment and other test devices are connected by AMS marketing researcher William Barger to freshly harvested lettuce in an experimental vacuum cooler. Such experiments may result in improved performance of commercial coolers—making it easier to maintain harvest-fresh quality of produce.*

## MEETING QUALITY REQUIREMENTS OF TODAY'S MARKET

By WILBUR T. PENTZER

**H**OMEMAKERS are more concerned about the quality of fresh produce they buy than the price they pay for it. That's one of the findings in research studies made for food retailers. And it's no wonder, since nature has not equipped fresh vegetables very well for their trip from the farm to the dinner table.

Take lettuce as an example. It has no protection, not as much as an egg, against bruising or water loss. Lettuce must be handled carefully and placed in a cool atmosphere to keep it sound and fresh.

Marketing researchers from USDA's Agricultural Marketing Service have found many examples of fresh vegetables that would have brought their grower or handler a higher price and more sales, if they had been handled more carefully and cooled and refrigerated adequately.

Attention to such details is a major reason why many vegetables shipped halfway across the country, or farther, arrive at the market in better condition than those grown nearby. And they sell better, too.

Adequately refrigerated asparagus is more tender, corn and peas are sweeter, and leafy green vegetables retain their attractive crispness longer. And they all are richer in nutrition and vitamins.

**T**OP-QUALITY vegetables have higher sale appeal to an increasingly health-conscious population. Flavorful low-calorie vegetables with a high-vitamin content might well capture some of the \$545 million Americans spend annually for vitamin pills and weight reducers.

Quick cooling is essential to retain the harvest-fresh quality of most vegetables. AMS marketing researchers sug-

gest that cold, moist air or hydrocooling be used to keep asparagus, lettuce, sweet corn, peas, celery, cabbage, spinach, and other greens at 32° F.

Cantaloups keep better at 40°; cucumbers, eggplants, and green peppers at 45 to 50°; and mature green tomatoes at 55 to 70°.

And all but a few vegetables will reach the consumer in better condition when kept at a high humidity—90 to 95 percent. Hydrocooling, package icing, and plastic-film packages help create the humid conditions that protect high quality in vegetables.

Onions, pumpkins, and winter squash are the main exceptions, reaching the market in better condition when the humidity is at a level of 70 to 75 percent.

Marketing researchers stationed in Chicago, New York, and Washington, D. C., all found a greater need for such humidity and temperature conditions to raise the quality of some of the vegetables sold in their areas. And rough handling and poor packaging were too frequently observed, also.

Asparagus, summer cabbage, celery, lettuce, and hothouse tomatoes were generally found to reach the market in good condition.

Bell peppers, an expensive item, showed more evidence of mishandling than most other vegetables. In one sample, 41 percent of the peppers were bruised or otherwise injured. About 6 percent had begun to rot.

Either rough handling or the washing practice could have caused the peppers to rot. USDA's marketing researchers recommend that peppers be sprayed, rather than immersed in water, when washing. Immersion sometimes forces water into the seed cavity, which can cause peppers to rot.

Marketing researchers found some of the summer squash and sweet corn were too ripe when marketed, while mature-green tomatoes were too immature when harvested. Bruising was a major problem in tomatoes in all regions. In one sample, nearly 30 percent were severely bruised, 15 percent had skin breaks, and another 15 percent showed signs of decay. Such tomatoes do not ripen properly.

Big improvements have been made in getting better quality vegetables to market in recent years. But we are not even approaching what could be done if we put into practice the knowledge we now have.

*(The author is Director, Market Quality Research Division, Agricultural Marketing Service, United States Department of Agriculture.)*



# Packers and Stockyards Act:

By ROBERT D. THOMPSON

PERHAPS the one activity of the Agricultural Marketing Service's Packers and Stockyards Division which is closest to the livestock industry itself is that which deals with scales and weighing.

For, eventually, every transaction in the livestock and meat marketing fields involves an establishment of weight. Every head of livestock, every cut of meat served by the housewife, passes across some form of scale many times during the process of marketing.

Every dollar that changes hands in the livestock industry also depends—to one degree or another—on a weight determined by one of the Nation's thousands of scales.

Our job in the Scales and Weighing Branch, like that of every other employee of the P&S Division, is one of service—service to the seller, service to the buyer, and eventually service to every individual in the Nation.

We can sum up the goal of our Branch in one simple sentence: To see that livestock sold on the basis of weight is accurately weighed on correct scales.

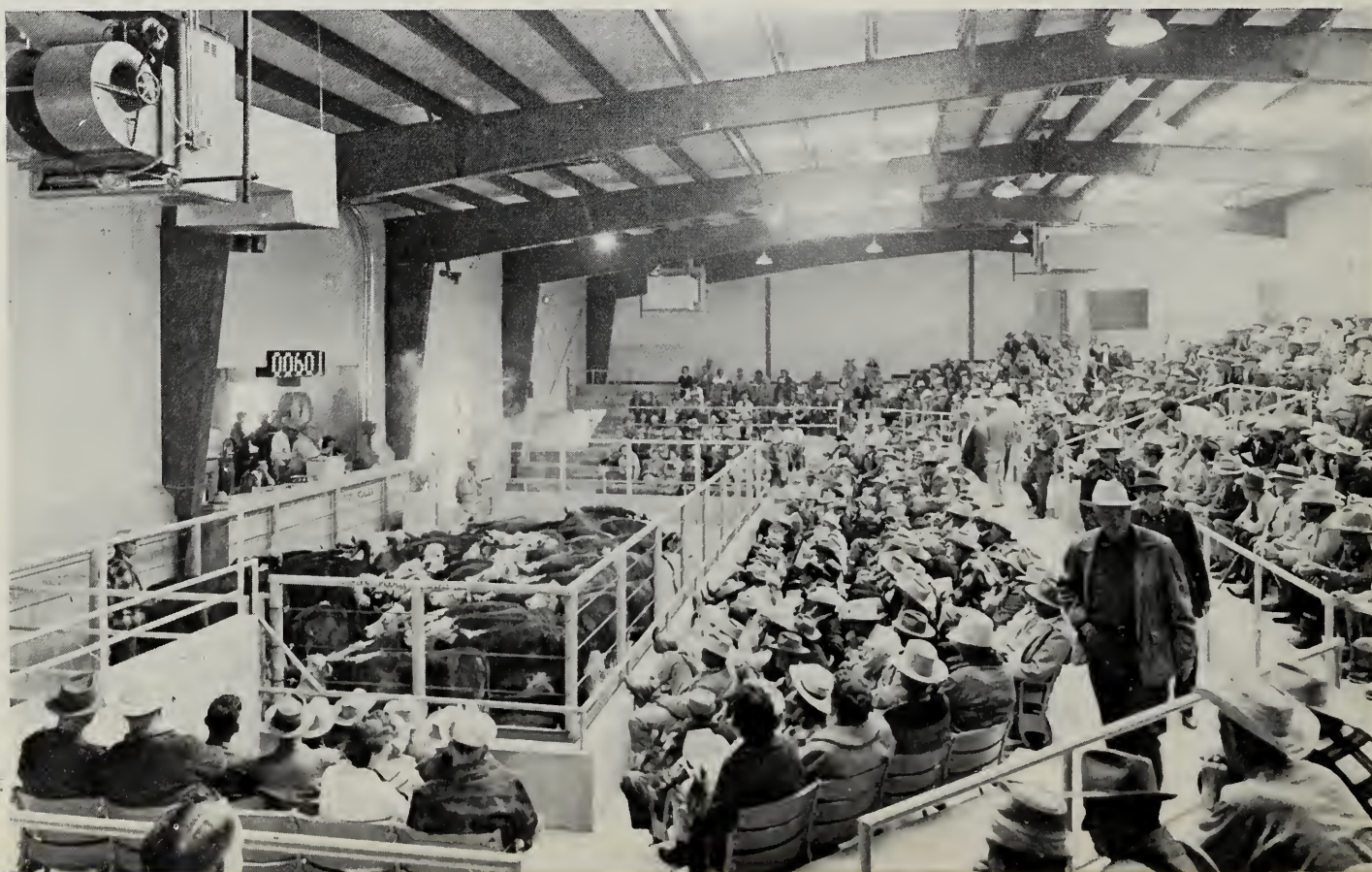
Going further, we can identify three major tasks of the Branch:

1. To see that all livestock scales are tested regularly at six-month intervals as required by the regulations.
2. To instruct livestock weighers on proper weighing practices and on their individual responsibilities.
3. To conduct investigations of weighing practices and correct any unfair practices discovered and reported.

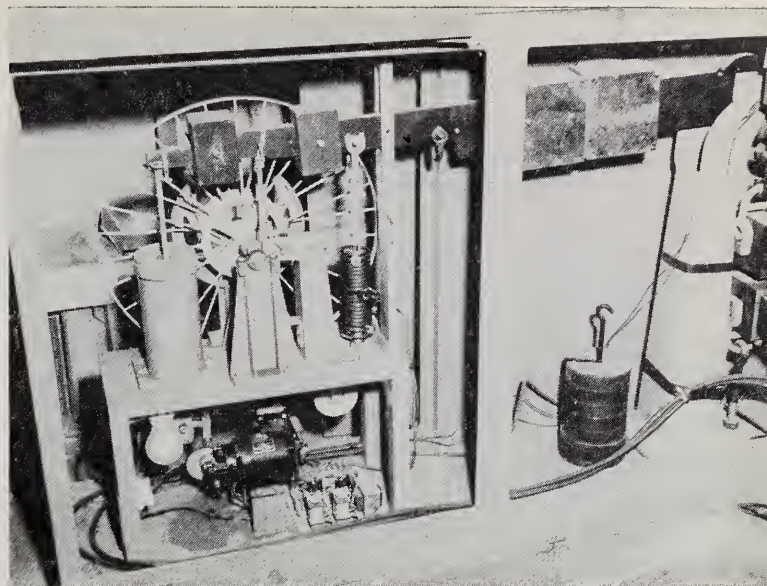
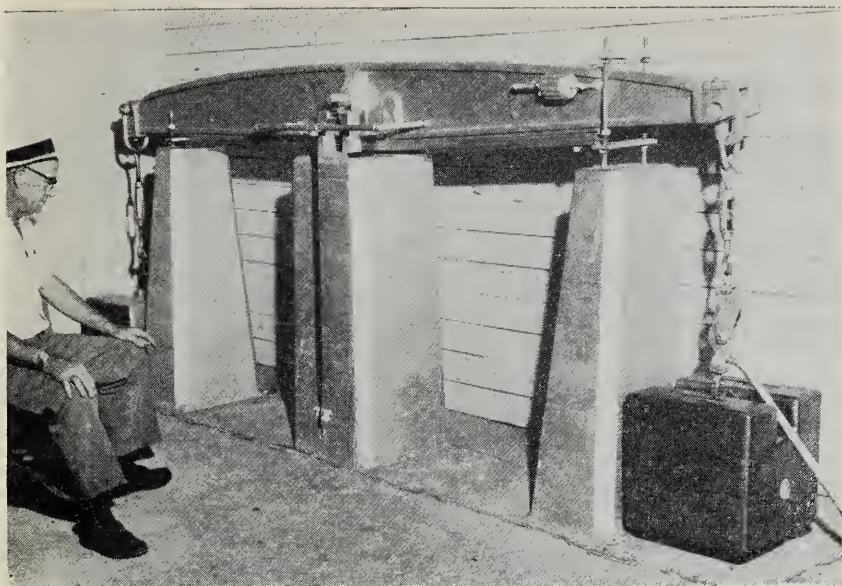
Illegal weighing practices cost livestock producers thousands of dollars each year. In some instances, total losses have amounted to figures between half-a-million dollars and \$1 million.

*(continued on page 10)*

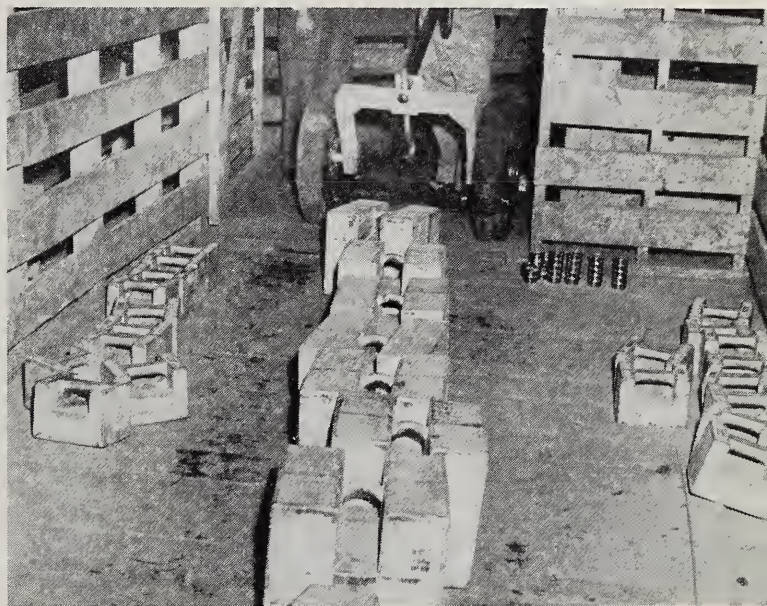
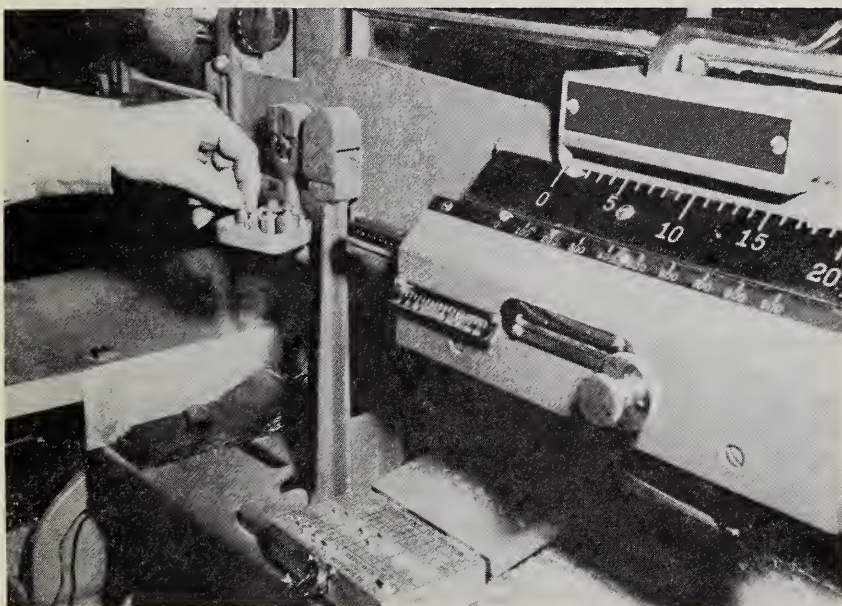
## Accurate Weights and Correct Scales for Livestock Producers







Left, test-weight calibration equipment at Fort Worth, Texas, stockyards. Here an official of the market watches the pointer on the sealing beam while the test weight is being checked against a master weight. Right, a view of the scale house showing part of the main scale at the right with the automatic weight recorder in a case in the background to the left. The automatic weight recorder operates independently of the main scale and records the true weight regardless of how the weighbeam of the main scale is operated. Originally attached secretly to scales in some livestock yards to detect inaccurate or dishonest weight, they are no longer kept in secret.



Above left, small correction weights are used to determine the amount of error in testing livestock scales. Above right, from 1,000 pounds up, the scale is tested at intervals of 1,000 pounds. As 500-pound test weights are applied to the scale platform, testers observe and record measurable errors, if any. Below left, a scale inspector and a P&S representative examine a scale pit and the underside of a scale deck to make sure that the pit is clean and that the scale mechanism is free from any obstruction or bind. A P&S specialist examines the scale ticket showing the stamped weight. Note P&S requirements posted on window above scale.





# *Illegal weighing practices cost producers thousands of dollars a year*

*(continued from page 8)*

Let me enumerate:

1. Some ten years ago an investigation of false weighing at one market uncovered a million-dollar-a-year racket.

2. A later investigation in another market turned up illegal activity conservatively estimated at about \$750,000.

More recently, investigations of weighing practices at small local markets and dealer and packer buying stations have revealed a number of instances where veal calves, hogs, sheep and cattle have been shortweighed. These shortages ranged from 5 to 40 pounds per head. In a few instances, short weighing appears to have been followed regularly to increase the dressed yield of the livestock.

## **Regular testing of scales**

The primary function of our Branch, of course, is to see that scales are tested regularly, as required by the Packers and Stockyards Act. This Federal statute gave authority for our activity and established the services due the industry in the field of livestock marketing.

Although testing is required by the P&S Act, we in the Division do not do the actual testing ourselves.

In many States, the testing is performed by State agencies. (In fact, many State laws require that such testing be done by State agencies.) In others, private firms do the testing, often under the supervision of Federal or State scales personnel.

The task of keeping track of scales involved in the marketing of livestock and slaughtered meat in interstate commerce has been steadily increasing.

Prior to 1958, when the P&S Act was amended to enlarge the Department's jurisdiction, we had about 2,000 scales (owned by packers and livestock marketers), under our regulation. Now, at least 8,000 scales are subject to our jurisdiction—almost 7,000 scales listed in our files and about a thousand more on which we have not yet received information.

Seeing that scales are maintained and kept accurate is only one phase of our operation. Also of vital importance to the industry is our job of making sure that all weighmasters know how to operate a scale properly.

Besides posting instructions at each scale explaining the legal operation of livestock scales, we also issue a detailed

instruction memorandum to each weighmaster. Weighmasters are required to sign a statement at the end of this memorandum, acknowledging that they understand their legal responsibilities and agree to comply with the instructions. This signed statement is filed in the local P&S district office.

Among things a weighmaster must do are:

. . . Keep the scale balanced at all times.

. . . Check the balance frequently to assure accuracy.

. . . Weigh each load to the nearest minimum gradation (favoring neither buyer nor seller).

. . . Print scale tickets only while livestock is on the scale.

It is extremely important—both for the buyer and seller and for the weighmaster—that proper scale tickets are issued. These are the “currency” by which the commerce of livestock marketing is carried on.

If a weighmaster knowingly issues a false scale ticket, he is liable to criminal prosecution under the Act—with a possible fine of \$5,000, imprisonment of up to three years, or both.

## **Conduct and investigations**

However, despite education and the constant checking of scales, incorrect weighing still seems to show up—since illegal weighing gives the unscrupulous livestock man his best opportunity to make a dishonest dollar.

Improper weighing and false scale tickets are often difficult for the average livestock producer to recognize. For this reason, expert scales and weighing men within our Division keep constant check on weighing operations—so that those who violate the Act may be stopped and to discourage those who might consider doing so.

Some of the basic techniques used by dishonest weighmasters include:

1. Moving the scale poise (weight slide) before printing the weight ticket.

2. Adding weight to the scale poise or to the counter balance weights in a weighbeam scale.

3. Moving the tare poise (a mechanism designed to compensate on the weighbeam for weight on the platform) of dial scale.

4. Locking weighbeams to prevent public from determining if scale is at zero balance.

However, the most common practice used by dishonest weighmasters is simply to weigh the livestock with the scale out of balance.

Scales and weighing specialists in USDA use several means of checking for violators.

One of the most dramatic methods used in recent years involves the installation of a secret automatic weight recorder, which works independently of the main scale and records the correct weight of the livestock regardless of how the main scale is operated.

The most common method used now is that of “check-weighing.”

In this operation, a team of specialists from the P&S Division go to a market at the close of the day and require the weighmaster to reweigh certain loads of livestock under close supervision.

Also used is the method of weighing livestock immediately before or after the livestock is weighed at a market. In this method, cattle are normally weighed on a correct scale within a few miles of the market itself.

## **A concept of service**

Our work ties in with the basic concept of service held by the Packers and Stockyards Division—“To see that the livestock producer receives a fair price for the sale of his livestock.”

This concept of service has been our goal in the past and will continue to be our aim in the future.

Right now, in the P&S Division, we are taking a careful look at the situation of livestock being sold to meat packers on the basis of “grade and yield.”

For this type of transaction, the “hot weight” or carcass scale on the kill floor of the packing plant is of particular importance.

Regular testing and maintenance, proper methods of identifying carcasses, and full accounting to producers who sell on this basis, are essential if this method of marketing is to be fair.

You can help us in our task of serving the industry. If you have any complaints about livestock weights—or any questions dealing with our work, please contact your area Packers and Stockyards Division district office, or write to the Division in Washington, D. C.

*(The author is Chief, Scales and Weighing Branch, Packers and Stockyards Division, AMS.)*



# Industry Promotional Programs Increase Sales of Lamb

**W**ILL advertising sell more farm products, such as lamb?

"Yes," says the Economic Research Service of the U. S. Department of Agriculture.

Cooperating with the American Sheep Producers Council, which represents all U. S. sheep producers—organized in 1955 to increase the use of lamb and wool—the agency recently set out to learn if promotion would sell more lamb.

The Council attempted to boost sales of lamb in two different ways: Cooperative advertising placed by local retailers, and a promotion campaign to boost the use of lamb in general. Retailer ads were of the "Lamb is a bargain this week. Buy it here," type, while the Council ads said, in effect, "Lamb is delicious. Why not try it tonight?"

Happily, the results were gratifying. Lamb sales increased as much as 27 percent as a result of cooperative advertising, and 10 percent for the Council's promotion. At the same time, sales of other red meats were not noticeably affected. A control period of no promotion by the Council was a basis for comparison.

This study was made in six metropolitan areas: Three in the Midwest, where lamb is a slow seller, and three in the Northeast where lamb is more popular. During the 18-week test, all advertising ran in metropolitan newspapers.

The cooperative advertising arrangement got a lot of retailer support. The Sheep Producers Council paid store owners half the cost of advertising devoted to lamb. On their part, retailers devoted more of their ad space to lamb and, as a result of more lamb specials, reduced lamb prices an average of 8 percent. Also they gave lamb more room in their display counters when the Council helped foot the advertising bill.

Usually, retailers tend to advertise only the well-known cuts of lamb such as leg, loin, and chops. Thus, the more popular cuts must carry the cost and profit for the whole carcass. Therefore, the Sheep Producers Council has en-

couraged retailers to advertise the less popular breast, shank, and neck slices in order to spread out their wholesale costs. And, during the Council promotion, retailers did emphasize the lesser known cuts.

The Council's own advertisements described lamb preparation and pictured a variety of attractive lamb dishes. Also, they tried to attract new customers with recipes and eye-appeal rather than with price reductions, as retailers did.

Except for the control period, the Council staff continued their regular educational program. Field men contacted packers and retailers and demonstrated improved methods of cutting and displaying lamb. Home economists showed the general public how to prepare and cook various lamb dishes through personal appearances at schools and women's clubs and cooking demonstrations on television.

Although the cooperative arrangement was considered a success, advertising with retailers can be difficult to administer because of Federal laws on restraint of trade. There is also the question of what happens to local retailer advertising if the Council decides to reduce, or withdraw, its financial support to retailers. For, without Council help, they might cut their lamb advertising space.

When the Council carries the entire advertising burden, it runs into difficulties again: While the Council is promoting lamb, retailers tend to advertise less, and the Council is charged more for their ads than the retailers.

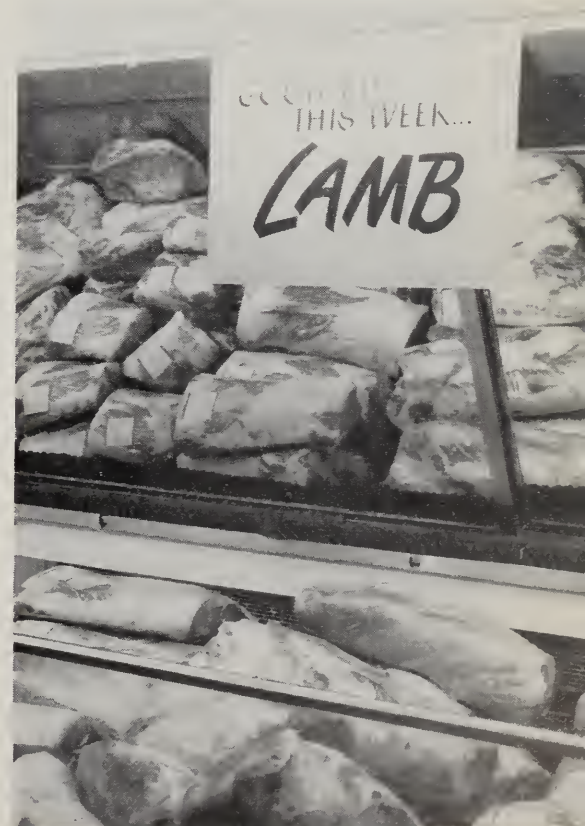
Although cooperative advertising appeared to get the biggest sales increase, the promotion program used by the Sheep Producers Council may be a better way to attract new customers over a longer period. And, gaining new customers for lamb could mean more sales and a bigger payoff from the advertising investment than would show up in a brief test.

In general, the study suggested important roles for both methods of promotion, depending on the characteristics

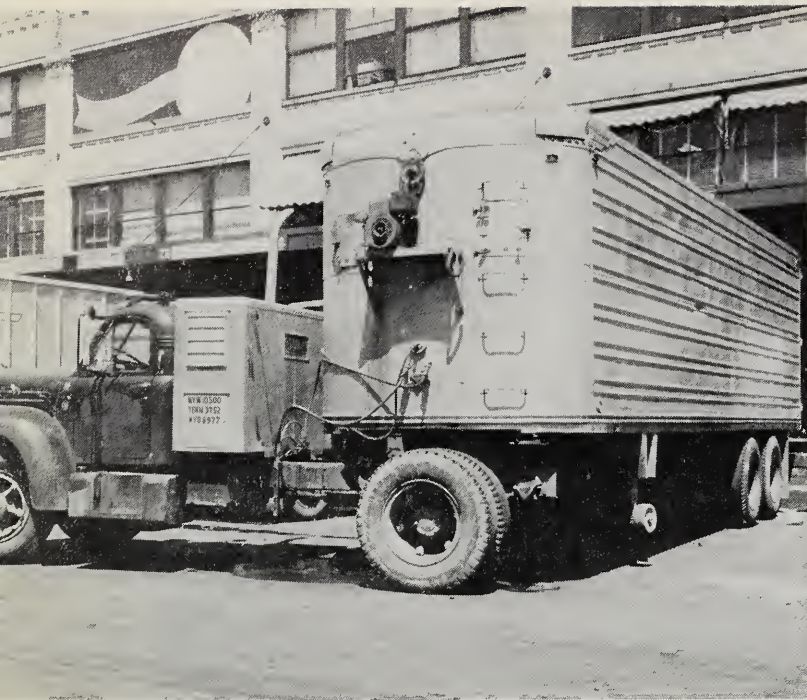
of the market. For special problems such as abnormally heavy supplies, paying the retailer a part of the cost of featuring a variety of lamb cuts could well help to attract bargain-wise homemakers. This direct appeal would also be useful in such areas as the Northeast where more people regularly buy lamb.

In such areas as the Midwest, where lamb consumption is low, demand must be created. And a combination of both programs would probably do the most good.

Single copies of the report, MRR-522, "Promotional Programs for Lamb and Their Effects on Sales," are available from the Office of Information, USDA. The study was made by Peter L. Henderson, James F. Hind, and Sidney E. Brown, staff members of the Marketing Economics Division, Economic Research Service, USDA.







# Truck Brokers Help Move Farm Products to Market

GROWERS of fruits and vegetables depend on for-hire truck transportation to rush their produce to metropolitan markets. But, in the midst of harvest they haven't time to look around for truckers with the particular load space they need.

At the same time, the trucker loses time and income if he must search for loads on his own. He frequently needs to borrow money for operating expenses in order to carry on his business, too. The truck broker is the man who fills the bill for both the shipper and trucker. His telephone becomes almost a third arm as he matches trucks with loads and offers credit to the trucker.

A recent study by the Economic Research Service of the U.S. Department of Agriculture showed that the nearly 250 brokers in the country in 1959 booked almost 4 million tons of farm commodities. Three-fourths of the shipments were fruits and vegetables.

If a typical broker could be assembled from the facts ERS researchers gathered, this is what his operation would look like: His office is in or near a fruit and vegetable growing area in California, the Southwest, or, most likely, Florida. Nearly a third of the approximately 250 brokers were located in

Florida in 1959. He probably is in the truck brokerage business the year-round—in fact, close to 9 out of 10 are—and usually books loads with trucking firms in his own region or nearby. The destination of these shipments is most often to eastern or midwestern markets.

There is a 50-50 chance that our average broker would be hauling agricultural commodities himself as well as arranging business for other trucking companies. If he is a trucker, too, he averages 9 semi-trailers and 8 tractors in use.

The broker most likely owns his own firm—49 percent of those surveyed did. If not, a corporation is the next most probable form of organization, and a partnership is least likely.

Besides finding space for shippers, the average broker provides additional services to shippers and receivers, such as making safety and license checks on trucks. To help truckers, he supplies information on ICC regulations and often obtains or carries cargo, liability, and property-damage insurance for them. However, the broker usually doesn't charge anything more for any of these extras.

In return for his services of matching trucks with loads, a broker generally

charges from 5 to 7 percent of the trucker's gross freight receipts and an additional 2 percent if he advances the trucker money for operating expenses. If he follows the usual practice, he collects the freight receipts from the shipper or receiver and pays the trucker after deducting his commission.

Sheets of suggested rates based on the weight and distance to be hauled are published by broker and shipper organizations and are usually followed by individual brokers. However, because he is handling agricultural products which are exempt from the regulation of routes and rates by the Interstate Commerce Commission, the individual broker can set his rates as he chooses. Changes in the demand for and supply of trucks, the commodity to be hauled, and the time of year affect what he charges.

Because he is in the unique position of being able to serve both shippers and truckers at the same time, the broker's services will likely continue to be needed—especially for seasonally produced perishable agricultural products.

Single copies of "The Role of Truck Brokers in the Movement of Exempt Agricultural Commodities," MRR-525, are available from the Office of Information, USDA, Washington 25, D. C.



# MORE AND MORE FRESH PRODUCE TRAVELING DIRECT TO RETAILERS

By ALDEN C. MANCHESTER

WITH more and more of our fresh produce traveling directly from producer to retailer, firms throughout the entire marketing system for fruits and vegetables are faced with the need to change to survive.

In the thirties, direct purchases by chains, wholesaler-sponsored voluntary groups, and retailer cooperatives were about 12 percent of the total market volume, according to figures compiled by USDA's Economic Research Service. By 1958, the volume had more than doubled. Purchases of fresh produce by these groups directly from shipping points were 27 percent of total market receipts throughout the country.

Future trends seem to depend largely on the needs of three buying groups—restaurants and other eating places; unaffiliated independent grocery stores; and the chains themselves who presumably, always will need to make some local purchases.

Restaurants, hotels, hospitals, and all the other institutions in the business of feeding people seldom are big enough to buy their produce outside the local market. These institutional outlets are about 15 to 20 percent of the total food market.

Although the number of unaffiliated independent stores is on the wane, they probably will continue to account for at least 10 to 15 percent of total food sales.

The chains themselves generally buy about 20 to 30 percent of their total purchases locally.

By combining the local purchases of these groups, the ceiling on direct buying of fresh fruits and vegetables appears to be somewhere between 50 and 60 percent of total volume. Chances are it will be many years before this ceiling is reached, if, indeed, it ever is.

As the number of retail organizations large enough to buy directly increases, growers, packers, and shippers may find themselves concentrating more and

more on supplying particular markets and offering special services.

Take prepackaging, for example. By and large, the chains would prefer not to perform this operation. The alert grower or packer who can offer the retailer uniform supplies of packaged produce with the quality retail customers want should be "ahead of the game."

Prepackaging can be turned to competitive advantage by shippers, too. The Florida Citrus Exchange pioneered prepackaging operations located in the marketing area. Their prepackaging plants near New York City and several other major markets have been highly successful over the past five years.

For some commodities, prepackaging could be tied in with bulk shipment from the growing area to reduce the cost of shipping containers and permit quality control closer to the consumer. Such bulk shipments call for large-scale operations for profit. Shippers from different growing areas might combine to make such an operation profitable.

Some growers or shippers will want

*Growers or packers who can offer retailers uniform supplies of packaged produce with the quality retail customers want should be, in the long run, "ahead of the game."*



to ride the trend by specializing in direct sales to one or two retail outlets. If they do, they should bear in mind the ties that bind chains to their suppliers. From 35 to 70 percent of the direct purchases by regional or local chains is made by telephone, and these are largely from the same shippers week after week throughout the season.

The fundamental requirements in such long-distance marketing are a good understanding between buyer and seller of just what particular quality the buyer wants and the ability to give it to him regularly. Some buyers want top quality and pay a premium to get it. Others need a more standard product at a lower price.

However direct buying works out in the production and sale of fresh fruit and vegetables, the continued trend in this direction is apt to segment the market. Shippers will tend to be identified with a relatively small number of buyers, and vice versa. This trend may simplify the problem of finding a market, but it will also divide the total market for a given commodity into many submarkets which are less closely connected.

At the wholesale level, of course, the emphasis will be more and more on "merchandising" instead of "trading." The old-line wholesale market often stressed making a profit from price changes. Today, profit is more apt to be found in performing a service which contributes to orderly marketing.

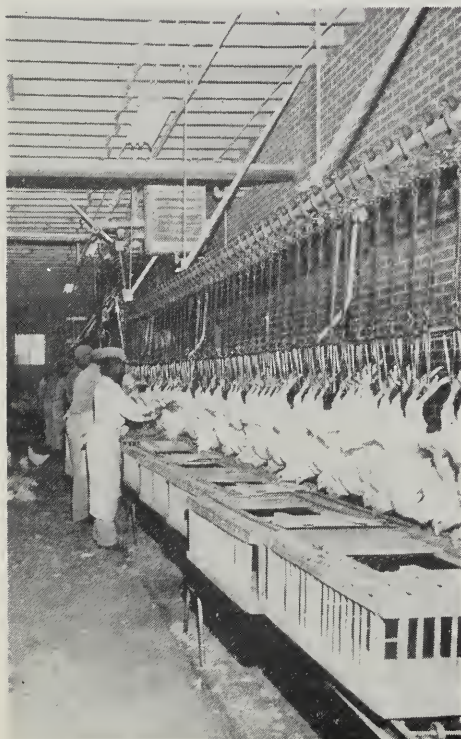
All the changes taking place in the marketing system point toward a smaller number of larger firms, all the way from the grower to the retailer. They may not be giant firms but they will be larger than many in the market today.

The man who survives in tomorrow's scene will be the one who adapts his product and the service he offers to the needs of one of the many specialized markets which are developing.

*(The author is a staff member of the Marketing Economics Division, Economic Research Service, USDA.)*



# THE CHANGING MARKET



## BROILER MARKET

A NEW concept in broiler market reporting has been developed by the Federal-State Market News Service to do a better job of serving a progressive and dynamic agricultural industry.

In four Southeastern States the basis for reporting prices has been broadened and changed to give a clearer picture of what is taking place in the live-broiler market.

Along with prices on completed sales, the Dairy and Poultry Market News Service has, since late 1961, been recognizing tentative paying prices, offers and bids, and intracompany transfers in its daily report of broiler "at farm" price ranges.

Historically, the Service has restricted its broiler market reporting to the price ranges that were definitely established before the market reports were issued. In recent years, this reporting was further refined by indicating the percentage of total volume that was sold at various prices within the reported range.

The new concept became necessary as more buyers and sellers in the States of Georgia, North Carolina, Alabama, and Mississippi tied their paying prices to the market report. This resulted in a larger percentage of sales being described as undetermined, and thus failed to give a full picture of market activity. Even sales which dealers indicated as being final were often subject to change after the Market News Service released the price information.

The situation became acute in the fall of 1961 when more birds in some States moved at fractional premiums over, rather than at, the price generally considered to be the "market." Now, with the new narrative style of reporting, any premiums or discounts made in relation to the reported market price are a part of the market report.

An increasing volume of poultry in the Southeast is being priced at the delivered-plant-price level, which is often based on the "at farm" figures. For this reason, the new broiler market report includes a full range of delivered-plant prices.

Federal-State market reports are widely used, and the new presentation of broiler prices has found good industry acceptance. The effectiveness of the new report is enhanced by the responsible attitude taken by the industry in providing the Market News Service with needed information on a timely and accurate basis.

*(The author, Edward H. Hansen, is Eastern Area Supervisor of the Dairy and Poultry Market News Branch, Dairy Division, Agricultural Marketing Service, U. S. Department of Agriculture.)*

## PEACHES PLENTIFUL

PEACHES and cantaloups will be the twin stars in August's crown of plentiful foods. Other cooling and tempting runnersup for summer's usually hottest month are fresh pears, fresh and processed lemons and limes, and frozen orange juice from a record 1961-62 pack of more than 100 million gallons.

Turkeys are another favorite plentiful, and farm prices in August are expected to be about as low as way back in the early 1940's. While this year's production is being reduced significantly, large cold storage holdings will keep them plentiful.

Rounding out the August list are a wide variety of summer vegetables, and vegetable fats and oils, with stocks; running close to record levels.

## PECAN GROWERS

RESEARCHERS have dipped their brushes into the assorted facts provided by a recent survey and have painted a picture of pecan growers in the South.

Under this survey by USDA's Economic Research Service, growers are pictured against last year's pecan production of 222 million pounds, worth something like \$41 million to growers. Most of them are located in the 11 States throughout the Southeast and Southwest. Growers in Arkansas, Florida, Georgia, South Carolina, New Mexico and Mississippi cooperated in this survey, and approximately 600 were interviewed.

If a representative grower is in South Carolina, Georgia, Florida, or Mississippi, he probably has trees around his house as well as in groves or orchards, and his pecan business is a sideline to his other farming operations. In New Mexico, pecan growers cultivate and



- *A New Concept in Broiler Market Reporting*
- *Peaches, Cantaloups Top List of August Plentiful Foods*
- *A Survey of Pecan Growers in the South*

irrigate their orchards more intensively.

The grower's location generally indicates how old his trees are likely to be, the number he owns, and the varieties. For instance, almost all the pecan trees in New Mexico are in the 21- to 30-year-old group. In the other States, the 30- to 40-year-old group predominated. Georgia, though, had more trees over 40 years of age than any of the other 5 States. The Stuart variety is most common in all of the five States, but in New Mexico, the Schley and Bradley trees account for practically all pecan production.

The practices the grower follows in caring for his trees are related to the size of his business. Generally, if he is a small operator he doesn't spend much time in cultivating or caring for his grove. As an example, in Arkansas only 9 growers out of the 56 interviewed pruned their trees, and only 5 disced their orchards. However, these 5 growers owned 82 percent of the acreage of pecans covered in the survey of Arkansas.

It was the same for other orchard care practices—only the larger growers took the time. Only 8 pecan growers out of 100 interviewed in Georgia reported spraying or dusting their orchards for insects and diseases—10 in Florida practiced insect and disease control, 13 in Arkansas, and 17 in Mississippi. All the pecan acreage surveyed in New Mexico was sprayed.

In the Southwest, when growers sprayed or dusted, it was to get rid of walnut aphids and caterpillar worms, and in the Southeast, for scab control, blight, or caterpillar worms.

Researchers found more growers applying fertilizer to their pecan trees than they expected. Again, if our typical grower is in the business full-scale, he fertilized his trees more heavily.

When it is time to market pecans, about 8 times out of 10 the grower sells to the nearest local dealer. The dealer

usually sells to a sheller, who markets 90 to 95 percent of all pecans in commercial channels. Occasionally, though, the sheller buys the nuts directly from the grower. Truckers, who may be agents for dealers or shellers, also buy some lots from growers.

In this study, the representative pecan grower does not sell by grade, although the U.S. Department of Agriculture has established grades and standards for use by the pecan industry. When the grower goes to the dealer or sheller with his pecans, some buyers will take a sample of them and crack out, count, and size the kernels as a basis for setting the price. Often, though, prices are determined without any consideration of the quality of the nuts.

Ninety-one of the 576 growers inter-

viewed indicated they planned to plant an additional 8,871 pecan trees. Most of these were to be planted in Mississippi, Georgia, and Florida.

The pecan grower typical of those interviewed spends little time in grower organizations. Only 66 of the respondents indicated they belonged to a State or regional grower association. Only 56 growers said they belonged to a cooperative marketing association. However, in Arkansas or Florida, it is more likely that the producer markets his pecans cooperatively.

Although the pecan grower has problems to work on, his industry appears in healthy condition, and his future in the pecan business looks bright—thanks to the popularity of pecans and the low costs of producing them.





## Shoppers Show Preference for Full-Red Apples

By HUGH M. SMITH

SHOPPERS TODAY—with more discretionary spending power—have definite preferences in some of their fresh-produce buying. Consider apples, for example.

Most shoppers like their Red-Delicious apples RED. They won't buy as many apples, either—that is, at the same price—if they're not full red, or almost that way. Although there is little or no difference in taste or nutritive value, if customers are confronted in the retail store with only "partial-red" Red Delicious apples, they are likely to purchase fewer apples than if displays contained those that are full red.

Marketing researchers from USDA's Economic Research Service found that when both full-red and partial-red apples were offered in a mixed display, sales were better than when only partial-red were displayed, but were less than when full-red apples were displayed. In other words, the greater the proportion of red color in the display, the greater the sales.

It appears that the premium now paid for highly colored Red Delicious apples has some justification on the basis of consumer acceptance. It also points the way for economy-minded shoppers to get equivalent quality in partial-red apples at a lower price, assuming that price differences for degree of color is reflected in retail prices.

These findings on relationship of color in apples and consumer acceptance are based on a 6-week controlled experiment in the Atlanta, Georgia, metropolitan area. Color ranges tested were the full red (75 to 100 percent good-red color); partial red (50 to 75 percent good-red color); and combination red and partial red (50 to 100 percent good-red color).

Sales of partial red apples were 33 percent less than full red and the combination was 14 percent less. Further studies will be required before it can be determined if similar sharp differ-

ences in consumer acceptance would be shown for Red Delicious apples graded on even narrower color ranges than those used in the Atlanta test.

(The author is a staff member of the Market Development Branch, Economic Research Service, USDA.)

### MORE FRUIT AHEAD

(Continued from page 3)

**Plums:** Total acreage of this item in 1960 stood at 29,405 acres. Of this amount, nearly 14,800 acres, or 50 percent, were planted since the turn of the 1950's.

**Avocados:** Plantings were abnormally heavy during the past decade. Slightly over half of the 1960 acreage was introduced between 1950 and 1958. Since 1958, however, the rate of planting has dropped sharply.

**Sweet cherries:** The production potential for this item appears to be enhanced particularly because of the heavy plantings during the years 1954 through 1958. In contrast to an average level of around 10 percent during the second half of the 1940's, nonbearing acreage in 1960 represented 27 percent of the total.

What does it all mean? Barring any

serious weather difficulties or wholesale removal of orchards, it appears that the noncitrus fruit production potential in California will increase in the years ahead.

Some of this increased production could be absorbed by population growth and development of new products and new markets for these fruit crops.

However, there have been pronounced upward trends in several important fruit crops nationally—and these could intensify the competition for both fresh and processed outlets.

As an example, each of the past four seasons has seen a national Freestone peach crop near 50 million bushels. This is in sharp contrast to the early 1950's, when the average production was about 38 million bushels.

This upward trend has been most obvious in the Southeast and Middle Atlantic States. But it has also shown up more moderately in such important producing States as Michigan, Arkansas, and Washington.

Peaches produced outside of California always have been heavily oriented to the fresh market. But there are indications now that these other States are looking more and more to the processing outlet as pressures on the fresh market increase.

Apples, too, could furnish stiffer competition in the next few years for such early-summer fruits as apricots, peaches, and plums. State tree surveys during the 1950's suggest that apple production will continue to increase for some time. And controlled-atmosphere storage is making it possible to store apples in volume for the late spring and early summer markets.

So that's the picture. California has increased its noncitrus fruit production potential and some other areas are also prepared to produce more of these fruits. It could mean stiffer competition for fruit markets in the years ahead.

(The author is Head, Program Analysis Section, Fruit Branch, Fruit and Vegetable Division, AMS.)



Growth Through Agricultural Progress